

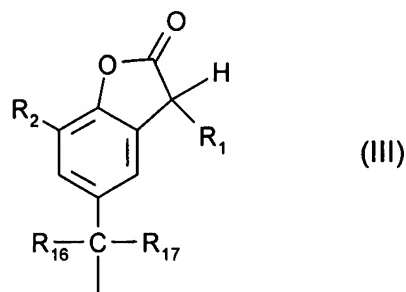
and

if n is 2,

$R_1$  is unsubstituted or  $C_1$ - $C_4$ alkyl- or hydroxy-substituted phenylene or naphthylene; or is  $-R_{12}-X-R_{13}-$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $R_5$  independently of one another are hydrogen, chlorine, hydroxyl,  $C_1$ - $C_{25}$ alkyl,  $C_7$ - $C_9$ phenylalkyl, unsubstituted or  $C_1$ - $C_4$ alkyl-substituted phenyl; unsubstituted or  $C_1$ - $C_4$ alkyl-substituted  $C_5$ - $C_8$ cycloalkyl;  $C_1$ - $C_{18}$ alkoxy,  $C_1$ - $C_{18}$ alkylthio,  $C_1$ - $C_4$ alkylamino, di( $C_1$ - $C_4$ alkyl)amino,  $C_1$ - $C_{25}$ alkanoyloxy,  $C_1$ - $C_{25}$ alkanoylamino,  $C_3$ - $C_{25}$ alkenoyloxy,  $C_3$ - $C_{25}$ alkanoyloxy which is interrupted by

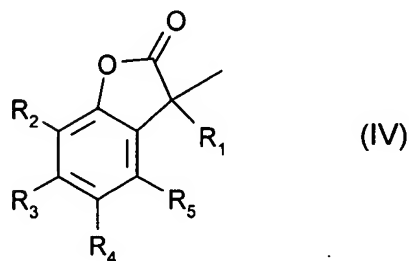
oxygen, sulfur or  $\text{>N}-R_{14}$ ;  $C_6$ - $C_9$ cycloalkylcarbonyloxy, benzoyloxy or  $C_1$ - $C_{12}$ alkyl-substituted

benzoyloxy; or else the radicals  $R_2$  and  $R_3$  or the radicals  $R_3$  and  $R_4$  or the radicals  $R_4$  and  $R_5$ , together with the carbon atoms to which they are attached, form a benzo ring,  $R_4$  is additionally  $-(CH_2)_p-COR_{15}$  or  $-(CH_2)_qOH$  or, if  $R_3$ ,  $R_5$  and  $R_6$  are hydrogen,  $R_4$  is additionally a radical of the formula III



in which  $R_1$  is defined as indicated above for  $n = 1$ ,

$R_6$  is hydrogen or a radical of the formula IV



where  $R_4$  is not a radical of the formula III and  $R_1$  is defined as indicated above for  $n = 1$ ,

$R_7$ ,  $R_8$ ,  $R_9$ ,  $R_{10}$  and  $R_{11}$  independently of one another are hydrogen, halogen, hydroxyl,  $C_1$ - $C_{25}$ alkyl,  $C_2$ - $C_{25}$ alkyl interrupted by oxygen, sulfur or  $\text{>N}-R_{14}$  ;  $C_1$ - $C_{25}$ alkoxy,  $C_2$ - $C_{25}$ alkoxy interrupted by

oxygen, sulfur or  $\text{>N}-R_{14}$  ;  $C_1$ - $C_{25}$ alkylthio,  $C_3$ - $C_{25}$ alkenyl,  $C_3$ - $C_{25}$ alkenyloxy,  $C_3$ - $C_{25}$ alkynyl,  $C_3$ -

$C_{25}$ alkynyloxy,  $C_7$ - $C_9$ phenylalkyl,  $C_7$ - $C_9$ phenylalkoxy, unsubstituted or  $C_1$ - $C_4$ alkyl-substituted phenyl; unsubstituted or  $C_1$ - $C_4$ alkyl-substituted phenoxy; unsubstituted or  $C_1$ - $C_4$ alkyl-substituted  $C_5$ - $C_8$ cycloalkyl; unsubstituted or  $C_1$ - $C_4$ alkyl-substituted  $C_5$ - $C_8$ cycloalkoxy;  $C_1$ - $C_4$ alkylamino, di( $C_1$ -

$C_4$ alkyl)amino,  $C_1$ - $C_{25}$ alkanoyl,  $C_3$ - $C_{25}$ alkanoyl interrupted by oxygen, sulfur or  $\text{>N}-R_{14}$  ;

$C_1$ - $C_{25}$ alkanoyloxy,  $C_3$ - $C_{25}$ alkanoyloxy interrupted by oxygen, sulfur or  $\text{>N}-R_{14}$  ;

$C_1$ - $C_{25}$ alkanoylamino,  $C_3$ - $C_{25}$ alkenoyl,  $C_3$ - $C_{25}$ alkenoyl interrupted by oxygen, sulfur or  $\text{>N}-R_{14}$  ;

$C_3$ - $C_{25}$ alkenoyloxy,  $C_3$ - $C_{25}$ alkenoyloxy interrupted by oxygen, sulfur or  $\text{>N}-R_{14}$  ;  $C_6$ -

$C_9$ cycloalkylcarbonyl,  $C_6$ - $C_9$ cycloalkylcarbonyloxy, benzoyl or  $C_1$ - $C_{12}$ alkyl-substituted benzoyl;

benzoyloxy or  $C_1$ - $C_{12}$ alkyl-substituted benzoyloxy;  $\text{—O—}\overset{\overset{R_{18}}{|}}{\underset{\underset{R_{19}}{|}}{C}}\text{—}\overset{\overset{O}{||}}{C}\text{—}R_{15}$  or

$\text{—O—}\overset{\overset{R_{20}}{|}}{\underset{\underset{H}{|}}{C}}\text{—}\overset{\overset{R_{21}}{|}}{\underset{\underset{R_{22}}{|}}{C}}\text{—O—}R_{23}$  , or else, in formula II, the radicals  $R_7$  and  $R_8$  or the radicals  $R_8$  and  $R_{11}$ ,

together with the carbon atoms to which they are attached, form a benzo ring,

$R_{12}$  and  $R_{13}$  independently of one another are unsubstituted or  $C_1$ - $C_4$ alkyl-substituted phenylene or naphthylene,

$R_{14}$  is hydrogen or  $C_1$ - $C_8$ alkyl,

$R_{15}$  is hydroxyl,  $\left[ \text{—O}^- \frac{1}{r} M^{r+} \right]$  ,  $C_1$ - $C_{18}$ alkoxy or  $\text{—N}\begin{matrix} R_{24} \\ R_{25} \end{matrix}$  ,

$R_{16}$  and  $R_{17}$  independently of one another are hydrogen,  $CF_3$ ,  $C_1$ - $C_{12}$ alkyl or phenyl, or  $R_{16}$  and  $R_{17}$ , together with the C atom to which they are attached, form a  $C_5$ - $C_8$ cycloalkylidene ring which is unsubstituted or substituted from 1 to 3 times by  $C_1$ - $C_4$ alkyl;

$R_{18}$  and  $R_{19}$  independently of one another are hydrogen,  $C_1$ - $C_4$ alkyl or phenyl,

$R_{20}$  is hydrogen or  $C_1$ - $C_4$ alkyl,

$R_{21}$  is hydrogen, unsubstituted or  $C_1$ - $C_4$ alkyl-substituted phenyl;  $C_1$ - $C_{25}$ alkyl,  $C_2$ - $C_{25}$ alkyl interrupted by

oxygen, sulfur or  $\text{>N-R}_{14}$  ;  $C_7$ - $C_9$ phenylalkyl which is unsubstituted or substituted on the phenyl

radical from 1 to 3 times by  $C_1$ - $C_4$ alkyl;  $C_7$ - $C_{25}$ phenylalkyl which is unsubstituted or substituted on the

phenyl radical from 1 to 3 times by  $C_1$ - $C_4$ alkyl and interrupted by oxygen, sulfur or  $\text{>N-R}_{14}$  , or

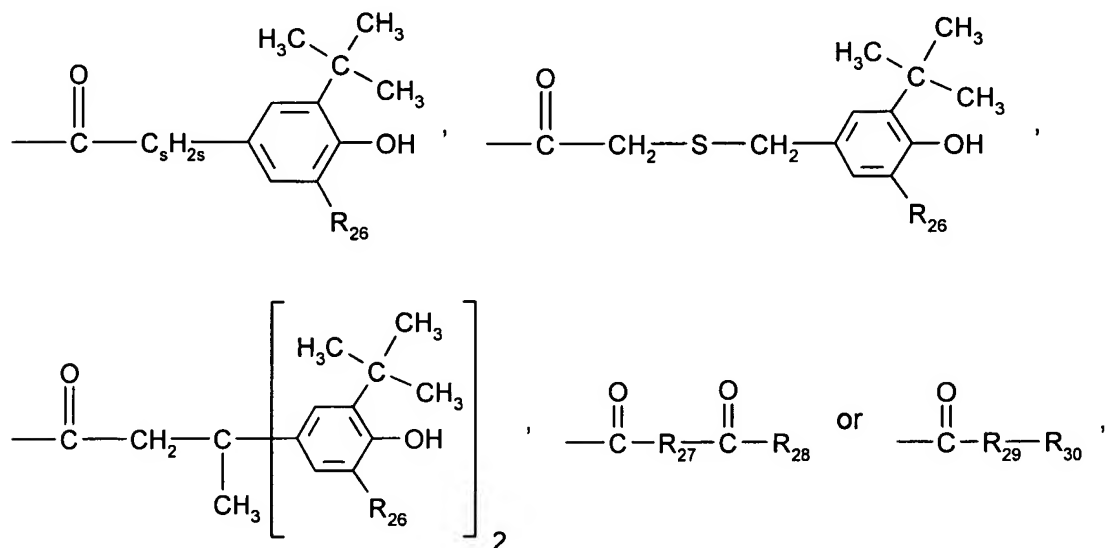
else the radicals  $R_{20}$  and  $R_{21}$ , together with the carbon atoms to which they are attached, form a  $C_5$ - $C_{12}$ cycloalkylene ring which is unsubstituted or substituted from 1 to 3 times by  $C_1$ - $C_4$ alkyl;

$R_{22}$  is hydrogen or  $C_1$ - $C_4$ alkyl,

$R_{23}$  is hydrogen,  $C_1$ - $C_{25}$ alkanoyl,  $C_3$ - $C_{25}$ alkenoyl,  $C_3$ - $C_{25}$ alkanoyl interrupted by oxygen, sulfur or

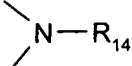
$\text{>N-R}_{14}$  ;  $C_2$ - $C_{25}$ alkanoyl substituted by a di( $C_1$ - $C_6$ alkyl)phosphonate group;

$C_6$ - $C_9$ cycloalkylcarbonyl, thenoyl, furoyl, benzoyl or  $C_1$ - $C_{12}$ alkyl-substituted benzoyl;



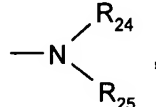
$R_{24}$  and  $R_{25}$  independently of one another are hydrogen or  $C_1$ - $C_{18}$ alkyl,

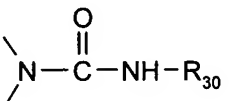
$R_{26}$  is hydrogen or  $C_1$ - $C_8$ alkyl,

R<sub>27</sub> is a direct bond, C<sub>1</sub>-C<sub>18</sub>alkylene, C<sub>2</sub>-C<sub>18</sub>alkylene interrupted by oxygen, sulfur or  ; C<sub>2</sub>-

C<sub>18</sub>alkenylene, C<sub>2</sub>-C<sub>20</sub>alkylidene, C<sub>7</sub>-C<sub>20</sub>phenylalkylidene, C<sub>5</sub>-C<sub>8</sub>cycloalkylene, C<sub>7</sub>-C<sub>8</sub>bicycloalkylene,

unsubstituted or C<sub>1</sub>-C<sub>4</sub>alkyl-substituted phenylene, or  or  ,

R<sub>28</sub> is hydroxyl,  $\left[ -O^- \frac{1}{r} M^{r+} \right]$  , C<sub>1</sub>-C<sub>18</sub>alkoxy or  ,

R<sub>29</sub> is oxygen, -NH- or  ,

R<sub>30</sub> is C<sub>1</sub>-C<sub>18</sub>alkyl or phenyl,

R<sub>31</sub> is hydrogen or C<sub>1</sub>-C<sub>18</sub>alkyl,

M is an r-valent metal cation,

X is a direct bond, oxygen, sulfur or -NR<sub>31</sub>-,

n is 1 or 2,

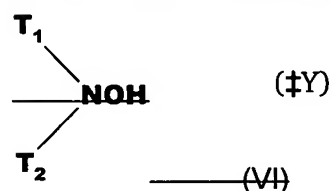
p is 0, 1 or 2,

q is 1, 2, 3, 4, 5 or 6,

r is 1, 2 or 3, and

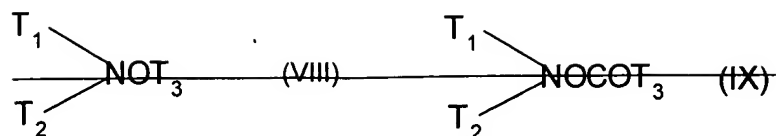
s is 0, 1 or 2;

~~(ii) a long chain N,N-dialkylhydroxylamine of formula (VI)~~



~~wherein T<sub>1</sub> and T<sub>2</sub> are independently straight or branched chain alkyl of 6 to 36 carbon atoms;~~

~~(iii) substituted hydroxylamines may be for example of the formula (VIII) or (IX)~~



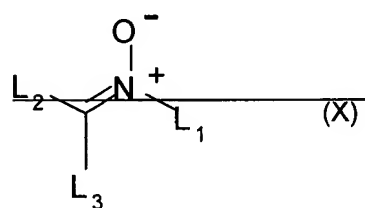
wherein

— ~~T<sub>1</sub> is straight or branched chain alkyl of 1 to 36 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, aralkyl of 7 to 9 carbon atoms, or said aralkyl substituted by one or two alkyl of 1 to 12 carbon atoms or by one or two halogen atoms;~~

— ~~T<sub>2</sub> is hydrogen, or independently has the same meaning as T<sub>1</sub>; and~~

— ~~T<sub>3</sub> is allyl, straight or branched chain alkyl of 1 to 36 carbon atoms, cycloalkyl of 5 to 18 carbon atoms, cycloalkenyl of 5 to 18 carbon atoms or a straight or branched chain alkyl of 1 to 4 carbon atoms substituted by phenyl or by phenyl substituted by one or two alkyl groups of 1 to 4 carbon atoms or by 1 or 2 halogen atoms;~~

(iv) — ~~nitrones of the formula (X)~~



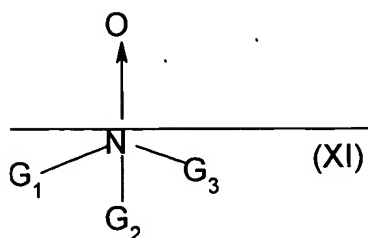
— wherein

— ~~L<sub>1</sub> is straight or branched chain alkyl of 1 to 36 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, aralkyl of 7 to 9 carbon atoms, or said aralkyl substituted by one or two alkyl of 1 to 12 carbon atoms or by one or two halogen atoms;~~

— ~~L<sub>2</sub> and L<sub>3</sub> are independently hydrogen, straight or branched chain alkyl of 1 to 36 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, aralkyl of 7 to 9 carbon atoms, or said aralkyl substituted by one or two alkyl of 1 to 12 carbon atoms or by one or two halogen atoms;~~

— ~~or L<sub>1</sub> and L<sub>2</sub> together form a five or six membered ring including the nitrogen atom; and~~

(v) ~~amine oxides are for example saturated tertiary amine oxides as represented by general formula (XI):~~



\_\_\_\_\_ wherein

\_\_\_\_\_ ~~G<sub>1</sub> and G<sub>2</sub> are independently a straight or branched chain alkyl of 6 to 36 carbon atoms, aryl of 6 to 12 carbon atoms, aralkyl of 7 to 36 carbon atoms, alkaryl of 7 to 36 carbon atoms, cycloalkyl of 5 to 36 carbon atoms, alkylcycloalkyl of 6 to 36 carbon atoms or cycloalkylalkyl of 6 to 36 carbon atoms;~~

\_\_\_\_\_ ~~G<sub>3</sub> is a straight or branched chain alkyl of 1 to 36 carbon atoms, aryl of 6 to 12 carbon atoms, aralkyl of 7 to 36 carbon atoms, alkaryl of 7 to 36 carbon atoms, cycloalkyl of 5 to 36 carbon atoms, alkylcycloalkyl of 6 to 36 carbon atoms or cycloalkylalkyl of 6 to 36 carbon atoms; with the proviso that at least one of G<sub>1</sub>, G<sub>2</sub> and G<sub>3</sub> contains a C-H carbon-hydrogen bond; and~~

\_\_\_\_\_ ~~wherein said aryl groups may be substituted by one to three halogen, alkyl of 1 to 8 carbon atoms, alkoxy of 1 to 8 carbon atoms or combinations thereof; and~~

\_\_\_\_\_ ~~wherein said alkyl, aralkyl, alkaryl, cycloalkyl, alkylcycloalkyl and cycloalkylalkyl groups may be interrupted by one to sixteen -O-, -S-, -SO-, -SO<sub>2</sub>-, -COO-, -OCO-, -CO-, -NG<sub>4</sub>-, -CONG<sub>4</sub>- and -NG<sub>4</sub>CO- groups, or wherein said alkyl, aralkyl, alkaryl, cycloalkyl, alkylcycloalkyl and cycloalkylalkyl groups may be substituted by one to sixteen groups selected from -OG<sub>4</sub>-, -SG<sub>4</sub>-, -COOG<sub>4</sub>-, -OCOG<sub>4</sub>-, -COG<sub>4</sub>-, -N(G<sub>4</sub>)<sub>2</sub>-, -CON(G<sub>4</sub>)<sub>2</sub>-, -NG<sub>4</sub>COG<sub>4</sub>- and 5- and 6-membered rings containing the C(CH<sub>3</sub>)(CH<sub>2</sub>R<sub>x</sub>)NL(CH<sub>2</sub>R<sub>x</sub>)(CH<sub>3</sub>)C- group or wherein said alkyl, aralkyl, alkaryl, cycloalkyl, alkylcycloalkyl and cycloalkylalkyl groups are both interrupted and substituted by the groups mentioned above; and~~

\_\_\_\_\_ wherein

\_\_\_\_\_ ~~G<sub>4</sub> is independently hydrogen or alkyl of 1 to 8 carbon atoms;~~

\_\_\_\_\_ ~~R<sub>x</sub> is hydrogen or methyl;~~

\_\_\_\_\_ ~~L is hydrogen, hydroxy, C<sub>1-30</sub>-straight or branched chain alkyl moiety, a -C(O)R moiety where R is a C<sub>1-30</sub>-straight or branched chain alkyl group, or a -OR<sub>y</sub> moiety; and~~

\_\_\_\_\_ ~~R<sub>y</sub> is C<sub>1-30</sub>-straight or branched chain alkyl, C<sub>2</sub>-C<sub>30</sub>-alkenyl, C<sub>2</sub>-C<sub>30</sub>-alkynyl, C<sub>5</sub>-C<sub>12</sub>-cycloalkyl, C<sub>6</sub>-C<sub>10</sub>-bicycloalkyl, C<sub>6</sub>-C<sub>8</sub>-cycloalkenyl, C<sub>6</sub>-C<sub>10</sub>-aryl, C<sub>7</sub>-C<sub>9</sub>-aralkyl, C<sub>7</sub>-C<sub>9</sub>-aralkyl substituted by alkyl or aryl, or -CO(D), where D is C<sub>4</sub>-C<sub>18</sub>-alkyl, C<sub>4</sub>-C<sub>18</sub>-alkoxy, phenyl, phenyl substituted by hydroxy, alkyl or alkoxy, or amino or amino mono- or di-substituted by alkyl or phenyl; wherein said edible organic substance is selected from the group consisting of potato flakes, bakery products, meat~~

emulsions, precooked cereals, instant noodles, soybean milk, chicken products, sausage, mayonnaise, margarine, frozen fish, frozen pizza and cheese.

2. (original). The composition of claim 1 wherein the benzofuranone is at least one compound of formula I wherein  $n = 1$ ,  $R_1$  is phenyl which is unsubstituted or substituted in para-position by  $C_1$ - $C_{18}$ alkylthio or di( $C_1$ - $C_4$ alkyl)amino; mono- to penta-substituted alkylphenyl containing together a total of at most 18 carbon atoms in the 1 to 5 alkyl substituents; naphthyl, biphenyl, terphenyl, phenanthryl, anthryl, fluorenyl, carbazoyl, thienyl, pyrrolyl, phenothizinyll or 5,6,7,8-tetrahydronaphthyl, each of which is unsubstituted or substituted by  $C_1$ - $C_4$ alkyl,  $C_1$ - $C_4$ alkoxy,  $C_1$ - $C_4$ alkylthio, hydroxy or amino.

3. (original). The composition of claim 1 wherein the benzofuranone is a compound of formula I wherein  $n$  is 2,  $R_1$  is  $-R_{12}-X-R_{13}-$ ,  $R_{12}$  and  $R_{13}$  are phenylene,  $X$  is oxygen or  $-NR_{31}-$ , and  $R_{31}$  is  $C_1$ - $C_4$ alkyl.

4. (original). The composition of claim 1 wherein the benzofuranone is at least one compound selected from the group consisting of 3-[4-(2-acetoxyethoxy)phenyl]-5,7-di-tert-butyl-benzofuran-2-one; 5,7-di-tert-butyl-3-[4-(2-stearoyloxyethoxy)phenyl]benzofuran-2-one; 3,3'-bis[5,7-di-tert-butyl-3-(4-[2-hydroxyethoxy]phenyl)benzofuran-2-one]; 5,7-di-tert-butyl-3-(4-ethoxyphenyl)benzofuran-2-one; 3-(4-acetoxy-3,5-dimethylphenyl)-5,7-di-tert-butylbenzofuran-2-one; 3-(3,5-dimethyl-4-pivaloyloxyphenyl)-5,7-di-tert-butyl-benzofuran-2-one; 5,7-di-tert-butyl-3-phenylbenzofuran-2-one; 5,7-di-tert-butyl-3-(3,4-dimethylphenyl)-benzofuran-2-one; 5,7-di-tert-butyl-3-(2,3-dimethylphenyl)benzofuran-2-one.

5-13. (cancelled).

14. (currently amended). The composition of claim 1 wherein the antioxidant of component (i) is present in an amount of from about 0.005% by weight to about 5% by weight, based on the weight of the edible organic substance.

15. (currently amended). The composition of claim 1 wherein the antioxidant of component (i) is present in an amount of from about 0.01% by weight to about 1% by weight, based on the weight of the edible organic substance.

16. (original). The composition of claim 1 wherein the composition further comprises additional food additives selected from food antioxidants in addition to those specified in claim 1, emulsifiers, suspension agent and colorings.

17. (original). The composition of claim 1 wherein the composition further comprises food antioxidants selected from the group consisting of butylated hydroxytoluene, butylated hydroxyanisole, tocopherol, ascorbic acid, benzylphosphonates, esters of b-(3,5-di-tert-butyl-4-hydroxyphenyl)propionic acid with mono- or polyhydric alcohols, esters of b-(5-tert-butyl-4-hydroxy-3-methylphenyl)propionic acid with mono- or polyhydric alcohols, esters of b-(3,5-dicyclohexyl-4-hydroxyphenyl)propionic acid with mono- or polyhydric alcohols, esters of 3,5-di-tert-butyl-4-hydroxyphenyl acetic acid with mono- or polyhydric alcohols, phosphites and phosphonites.

18. (cancelled).

19. (original). The composition of claim 1 wherein the edible organic substance is a food containing fatty acid glycerides, edible fats and fatty oils.

20. (original). The composition of claim 1 wherein the edible organic substance is a pet food or animal feed.